# Seismic Hazard Mapping Bulletin

## Policy Change in Seismic Hazard Mapping Criteria-

**5 Revised Preliminary Seismic Hazard Zone Maps Released**

The State Mining and Geology Board (SMGB) adopted revisions to the Liquefaction Hazard Zones section of the *Recommended Criteria For Delineating Seismic Hazard Zones In California* – California Geological Survey (CGS) Special Publication 118, at its April 24th, 2004 hearing. The recommended criteria were originally developed in the 1990'-s by a committee of experts established by the SMGB to provide guidance to CGS in delineating seismic hazard zones. **The SMGB decision to revise the recommended criteria was prompted by issues related to the exclusive use of historically high ground water when evaluating liquefaction potential. While conducting studies in Antelope Valley, a high-desert basin, it was recognized that there might be a need to expand recommended criteria for determining anticipated depth to saturated soil under conditions that were different from those encountered in geomorphic environments previously evaluated by CGS, mainly coastal basins. In response, the SMGB has adopted a two-case approach:**

- In areas where ground water is either currently near-surface or could return to near-surface within a land-use planning interval of 50 years, CGS constructs regional contour maps that depict anticipated high ground-water level based on historical ground-water data. CGS also delineates present or anticipated near-surface saturated soils caused by locally perched water and seepage from surface-water bodies.
- In areas with low precipitation, records may indicate that near-surface ground water existed during historical time, but large withdrawal and low recharge rates preclude a return to those conditions within the 50-year land use planning interval. For these areas, the historically highest ground-water level will not be used to establish the anticipated depth to saturated soil used for hazard evaluation. Instead, CGS delineates only present or anticipated near-surface saturated soils caused by locally perched water and seepage from surface-water bodies.

It must be noted that future initiation of large-scale, artificial recharge programs in ground-water basins could result in significant and dramatic rises in water levels. If this does occur, CGS can evaluate the impacts relative to liquefaction potential and revise the Official Seismic Hazard Zone Maps if necessary. Based on this policy change, the Seismic Hazard Mapping Program (SHMP) on August 11, 2004 released for public review five Revised Preliminary Seismic Hazard Zone Maps that cover the central basin area of Antelope Valley: **Alpine Butte Quadrangle, Del Sur Quadrangle, Lancaster East Quadrangle, Lancaster West Quadrangle and Rosamond Quadrangle**. These maps had been held in abeyance since February and April, 2003 pending the approval of the revised criteria.

## Seismic Hazards Mapping Survey Says…

that construction project plans have changed in the foundation design (38%), structural design (24%) and site remediation (23%) as a result of the site investigation findings. In November 2003 SHMP surveyed affected cities and counties to assess the effectiveness of the Program and Act. We have received surveys from 64 cities and 4 counties. Two key findings:

How well has the Act improved the safety of new buildings in your community?

- Greatly improved – 16%
- Moderately improved - 35%
- Slightly improved – 16%
- No improvement - 11%
- Unknown – 19%
- Other – 4%

Are fees for construction permits higher in Zones of Required Investigation versus areas outside the zones?

- Yes – 8%
- No - 81%
- Don't know 8%
- Other – 3%

Overall, we were heartened by the responses that the Seismic Hazard Zone Maps are triggering site-specific geotechincal reports that have resulted in changes in construction. However, for those local agencies that have not submitted any geotechnical reports or this survey, we are mailing requests to meet to discuss these findings. The meetings' goals are to review the requirements of the Seismic Hazards Mapping Act and, more importantly, answer questions regarding implementation of the Act.

**Upcoming Map Release:** On October 19, 2004, SHMP will release three Official Seismic Hazard Zone Maps in the San Francisco Bay area: Milpitas Quadrangle, Morgan Hill Quadrangle and Niles Quadrangle. Digital data as well as downloadable maps will be available on the website the day of the Official Map Release.

**Seismic Hazards Mapping Act (SHMA)**

The SHMA directs the Department of Conservation to identify and map areas prone to earthquake hazards of liquefaction, earthquake-induced landslides and amplified ground shaking. The Act requires site-specific geotechnical investigations be conducted identifying the hazard and formulating mitigation measures prior to permitting most developments designed for human occupancy within the Zones of Required Investigation. (Contact Candace M. Hill – chill@conservation.ca.gov for additional Seismic Hazard Zone Maps or digital data.)

The Resources Agency - Department of Conservation - California Geological Survey, Seismic Hazard Mapping Program, 801 K Street, MS 12-31, Sacramento, CA 95814 (916) 324-7299 - DOC website- www.conservation.ca.gov - SHMP website - http://gmw.consrv.ca.gov/shmp - Bulletin 15- August, 2004